

REMARKS/ ARGUMENTS

Claims 1, 3, 8, and 16 to 20 were rejected under 35 U.S.C. 102(b) as being anticipated by Vidalin (US 2002/0085963 A1). Claims 1, 5 to 7, and 10 were rejected under 35 U.S.C. 102(e) as being anticipated by Barbir (US2004/0142215 A1). Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Michelfelder (US 4,461,224). Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Faye (US 2003/0170514). Claims 9, and 11 to 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Keefer (US 2002/0098394 A1).

Reconsideration of the application based on the following remarks is respectfully requested.

Rejection under 35 U.S.C. §102(b)

Claims 1, 3, 8, and 16 to 20 were rejected under 35 U.S.C. 102(b) as being anticipated by Vidalin (US 2002/0085963 A1). Claim 1 now has the limitation of claim 5.

Vidalin discloses a system for synthesizing acetic acid from carbon monoxide and methanol (see Figure 2).

Claim 1, as amended, recites a gas generating system, comprising:

a reformer for producing a hydrogen-containing reformat gas using raw materials, at least a first of the raw materials containing carbon and hydrogen;

a separator device configured to selectively separate the hydrogen-containing reformat gas into hydrogen and a residual gas, the separator device including at least one diaphragm selectively permeable for hydrogen;

a recirculation system for recirculating an amount of the residual gas from a first location downstream of the separator device to a second location upstream from the separator device.

Vidalin does not show “the separator device including at least one diaphragm selectively permeable for hydrogen,” as now recited in claim 1.

Withdrawal of the rejection under 35 U.S.C. §102 (b) of claims 1, 3, 8 and 16 to 20 is respectfully requested.

Rejection under 35 U.S.C. §102(e)

Claims 1, 5 to 7, and 10 were rejected under 35 U.S.C. 102(e) as being anticipated by Barbir (US2004/0142215 A1).

Barbir discloses an electrochemical hydrogen compressor for an electrochemical cell system. A fuel cell with a fuel cell hydrogen inlet and a fuel cell hydrogen outlet is shown. (abstract). Unconsumed hydrogen that is exhausted from the fuel cell is compressed by the electrochemical hydrogen compressor and recirculated back to the hydrogen inlet. (paragraph [0022]). The compressor may also be used to recirculate hydrogen back into a fuel cell when hydrogen is exhausted from the fuel as a reformat, a mixture of gases. To avoid “the lowering of the hydrogen concentration at the cell stack inlet, which in turn may result in the loss in voltage across the cell stack and decreased power and efficiency” the compressor “allows for recirculation of the hydrogen constituent of the reformat gas while not recirculating the other gases of the reformat.” (paragraph [0042])

Claim 1, as amended, recites a gas generating system, comprising:

a reformer for producing a hydrogen-containing reformat gas using raw materials, at least a first of the raw materials containing carbon and hydrogen;

a separator device configured to selectively separate the hydrogen-containing reformat gas into hydrogen and a residual gas, the separator device including at least one diaphragm selectively permeable for hydrogen;

a recirculation system for recirculating an amount of the residual gas from a first location downstream of the separator device to a second location upstream from the separator device.

Claim 1 has been amended to include the limitations of claim 5. Barbir does not disclose “the separator device including at least one diaphragm selectively permeable for hydrogen,” as now recited in amended claim 1. Barbir simply discloses that a diaphragm pump can act as a mechanism to drive hydrogen gas out of a fuel cell. (paragraph [0031]). It is respectfully submitted that Barbir does not disclose that the diaphragm pump includes a diaphragm selectively permeable for hydrogen, nor does the Office Action even attempt to indicate where Barbir discloses this limitation. It is respectfully

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submitted that the pump of Barbir does not have a selectively permeable diaphragm, but rather the pump diaphragm must be unpermeable to hydrogen to pump it.

Withdrawal of the rejection under 35 U.S.C. §102 (e) of claims 1, 6, 7 and 10 is respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claim 2 was rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Michelfelder (US 4,461,224).

Barbir is described above.

Michelfelder discloses “a method of treating reaction products which result from the flame combustion of fuels containing contaminants such as sulfur, chlorine, and fluorine compounds, and ash.” (abstract).

Claim 2 recites “the gas generation system as recited in claim 1, wherein the second location is directly in front of the separator device.”

In view of arguments with respect to claim 1, withdrawal of the rejection to claim 2 is respectfully requested.

One skilled in the art would not modify Barbir in view of Michelfelder. Michelfelder is non-analogous art and not reasonably pertinent to the field of invention related to a gas generation system used to supply hydrogen to fuel cells. Michelfelder does not involve reforming of fuel, but rather treating reaction products resulting from the combustion of fuel to reduce contaminants emitted into the environment. (abstract). Therefore, one skilled in the art of fuel generation would definitely not take Michelfelder into account.

Withdrawal of the rejection under 35 U.S.C. 103 (a) of claim 2 is respectfully requested.

Claim 4 was rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Faye (US 2003/0170514).

Barbir is described above.

Faye discloses “a fuel cell device with a fuel cell unit and a conversion unit for converting fuel mixtures into a hydrogen-containing fluid stream.” (paragraph [0002]).

Claim 4 recites “the gas generation system as recited in claim 1, further comprising an enrichment device configured to enrich the hydrogen-containing reformat gas with hydrogen and disposed between the reformer and the separator devices, wherein the second location is between the reformer and the enrichment device.”

In view of arguments with respect to claim 1, withdrawal of the rejection to claim 4 is respectfully requested.

Also, neither Faye nor Barbir discloses “the second location is between the reformer and the enrichment device,” as recited in claim 4. It is respectfully submitted, it is not possible for Faye to teach the “second location between the reformer and the enrichment device” when Faye does not disclose, and in fact teaches away, from recirculating residual gases. Faye discloses discharging residual gases into the atmosphere, and not recirculating them. (paragraph [0038]).

Withdrawal of the rejection under 35 U.S.C. 103 (a) of claim 4 is respectfully requested.

Claims 9, and 11 to 15 were rejected under 35 U.S.C. 103(a) as being unpatentable over Barbir in view of Keefer (US 2002/0098394 A1).

In view of arguments with respect to claim 1, withdrawal of the rejection under 35 U.S.C. 103 (a) of claims 9, and 11 to 15 is respectfully requested.

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CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,

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